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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/674,202	DIEZ, ARMIN	
	Examiner	Art Unit	
	Raymond Alejandro	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/17/08*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,32-40,42-72 and 74-94* is/are pending in the application.

4a) Of the above claim(s) *47-55 and 79-87* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,32-40,42-46,56-72,74-78 and 88-94* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/658,628.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This correspondence is advanced in response to the amendment filed 01/17/08. The applicant has overcome the objections and most of the 35 USC 112 rejections. None of the rejections under Section 102 have been satisfactorily overcome. Refer to the abovementioned amendment for specific details on applicant's rebuttal arguments and remarks. Therefore, all pending claims are finally rejected over the same art of record as formulated hereunder and for the reasons of record:

Election/Restrictions

1. This application contains claims 47-55 and 79-87 drawn to an invention nonelected with traverse in the reply filed on 05/14/07. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 32-40, 42-46, 56-72, 74-78 and 88-94 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 1 and 63 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting

to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: as currently amended:

- independent claim 1 now recites "*at least one fluid port in a fluid guiding area of the fluid guiding element...said fluid port forming a part of a fluid channel which extends through the fuel cell unit parallel to a stacking direction...*" and "*the fluid guiding element...provided with a fluid supply channel opening and with a fluid discharge channel opening*".

- independent claim 63 now recites "*said fluid guiding element having an opening...*" and "*the fluid guiding element...provided with a fluid supply channel opening and with a fluid discharge channel opening*".

The examiner does not understand the structural relationship between fluid port/fluid channel and the fluid supply channel opening/fluid discharge channel opening in claim 1. Similarly, the structural relationship between the fluid guiding element opening and the fluid supply channel opening/fluid discharge channel opening in claim 63 is not understood. If the fluid guiding element opening (claim 63) or fluid port (claim 1) are the same as the fluid supply channel opening/fluid discharge channel opening then the claims include limitations which are redundant; if not, there exist a gap between the structural connections making it abundantly unclear to the examiner to visualize and determine how those element cooperate with one another in terms of both structure and functionality. Why are there two openings (the port and the opening in claim 1; or the fluid guiding element opening and the fluid supply channel opening in claim 63? Why are there apparently two channels (i.e. fluid channel and the implied channel formed by the connection between fluid supply channel opening and fluid discharge

channel opening)? If applicant is claiming a single piece element, the structure recited in claims 1 and 63 appears to be structurally inaccurate and over-described.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 32-40, 42-46, 56-72, 74-78 and 88-94 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 and 32-36 of U.S. Patent No. 6670068. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

The US patent'068 claims the following (Claims 1-19 and 32-36):

1. Fuel cell unit, comprising: a cathode-anode-electrolyte unit, a contact plate in electrically conductive contact with the cathode-anode-electrolyte unit, and a fluid guiding element being formed as a shaped sheet metal part and connected to the contact plate in a fluid-tight manner by way of welding or by way of soldering, the fluid guiding element and the contact plate defining therebetween a fluid chamber having a combustible gas or an oxidation agent flowing through it during operation of the fuel cell unit.

2. Fuel cell unit as defined in claim 1, wherein the cathode-anode-electrolyte unit is arranged on the fluid guiding element.

3. Fuel cell unit as defined in claim 1, wherein the contact plate is designed as a shaped sheet metal part.

4. Fuel cell unit as defined in claim 1, wherein the fluid guiding element and the contact plate are connected to one another by laser welding or by electron beam welding or by hard soldering.

5. Fuel cell unit as defined in claim 1, wherein the fluid guiding element has an opening for the passage of contact elements to the cathode-anode-electrolyte unit.

6. Fuel cell unit as defined in claim 1, wherein the fluid guiding element abuts on the cathode-anode-electrolyte unit via an electrically insulating seal.

7. Fuel cell unit as defined in claim 6, wherein the seal comprises mica.

8. Fuel cell unit as defined in claim 6, wherein the seal comprises a flat seal.

9. Fuel cell unit as defined in claim 6, wherein the seal comprises a coating on at least one of the fluid guiding element and the cathode-anode-electrolyte unit.

10. Fuel cell unit as defined in claim 1, wherein the cathode-anode-electrolyte unit and the fluid guiding element are biased elastically against one another.

11. Fuel cell unit as defined in claim 1, wherein the fluid guiding element is provided with at least one fluid port.

12. Fuel cell unit as defined in claim 11, wherein the fluid guiding element is provided with a fluid supply channel opening and with a fluid discharge channel opening.

13. Fuel cell unit as defined in claim 1, wherein the fuel cell unit comprises an electrically insulating fluid channel seal, the contact plate of the fuel cell unit abutting on the fluid guiding element of an adjacent fuel cell unit via said seal.

14. Fuel cell unit as defined in claim 1, wherein the fuel cell unit comprises a fluid channel seal, the fluid guiding element of the fuel cell unit abutting on the contact plate of an adjacent fuel cell unit via said seal.

15. Fuel cell unit as defined in claim 14, wherein the fluid channel seal comprises a coating on at least one of the fluid guiding element and the contact plate.

16. Fuel cell unit as defined in claim 14, wherein the fluid channel seal comprises a flat seal.

17. Fuel cell unit as defined in claim 14, wherein the fluid channel seal comprises at least two separate sealing elements.

18. Fuel cell unit as defined in claim 14, wherein the fluid channel seal comprises a slide fit sealing.

19. Fuel cell unit as defined in claim 14, wherein the fluid channel seal comprises a material viscous at the operating temperature of the fuel cell unit.

32. Fuel cell unit as defined in claim **2**, wherein the cathode-anode-electrolyte unit is held between the fluid guiding element and the contact plate.

33. Fuel cell unit as defined in claim **19**, wherein the fluid channel seal comprises a solder glass.

34. Fuel cell unit, comprising: a cathode-anode-electrolyte unit, a contact plate in electrically conductive contact with the cathode-anode-electrolyte unit, and a fluid guiding element being formed as a shaped sheet metal part and connected to the contact plate in a fluid-tight manner, said fluid guiding element and said contact plate forming a two-part shell surrounding said cathode-anode-electrolyte unit of the fuel cell unit.

35. Fuel cell unit, comprising: a cathode-anode-electrolyte unit, a contact plate in electrically conductive contact with the cathode-anode-electrolyte unit, a fluid guiding element being formed as a shaped sheet metal part and connected to the contact plate in a fluid-tight manner, and an electrically insulating fluid channel seal arranged between the contact plate of the fuel cell unit and the fluid guiding element of an adjacent fuel cell unit or between the fluid guiding element of the fuel cell unit and the contact plate of an adjacent fuel cell unit, said fluid channel seal surrounding a fluid port provided in the fluid guiding element or a fluid port provided in the contact plate and said fluid channel seal being spaced apart from the electrolyte of the cathode-anode-electrolyte unit of the fuel cell unit.

36. Fuel cell unit, comprising: a cathode-anode-electrolyte unit, a contact plate in electrically conductive contact with the cathode-anode-electrolyte unit, and a fluid guiding element being formed as a shaped sheet metal part and connected to the contact plate in a fluid-tight manner, said fluid guiding element forming a boundary of a fluid chamber having fluid flowing through it during operation of the fuel cell unit and abutting on the cathode-anode-electrolyte unit via an electrically insulating seal.

In this case, the specific combination of claims 1 and 11 of the patent'068 fully anticipates and encompasses the claimed subject matter. Thus, such a combination represents an obvious variant or modification of the invention of patent'068.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 32-36, 38-40, 42-46, 56, 58-68, 70-72, 74-78, 88 and 90-94 are rejected under 35 U.S.C. 102(b) as being anticipated by Isobe et al 4242099.

The present invention concerns a fuel cell unit wherein the disclosed inventive concept comprises the specifics of the fluid guiding element.

With respect to claims 1 and 63:

Isobe et al disclose a fuel cell comprising a plurality of unit cells stacked in layers, each adapted to receive two kinds of gases to generate electrical power (CLAIM 1/ABSTRACT). Each fuel cell unit are formed of a porous anode 2, a porous cathode 3 and an electrolyte 4 interposed between the anode 2 and the cathode 3. Unit cells 1 are stacked in layers, and a plurality of conductive separators elements 5 are interposed therebetween (Col 3, lines 25-34).

Figures 3-4 reproduced below illustrate the fuel cell configuration including a plurality of additional elements 5 (the separator element), 40 (adjacent seal member), 42-43 (metal members), 44 (insulating member) (See COL 4, lines 7-18), and segment channels 41 (See COL 3, lines 65-68) resembling substantially the same claimed structure including a fluid gas intake manifold 20 (*the fluid guiding area*) including an opening (*the port*) to which the anode 2-cathode 3-electrolyte 4 does not extend and the fluid gas intake manifold 20 extend through the

stacked unit cells 1 (See Applicant's attention is drawn to FIGURES 3-4). Isobe et al disclose the members 42, 43 are shaped metal members (COL 4, lines 7-10).

(***emphasis added***) Isobe et al discuss the inclusion of the oxidant gas (fluid) gas intake manifold 20 (*the fluid guiding area*) including an opening (*the port*) extend through the stacked unit cells 1 comprising the anode 2-cathode 3-electrolyte 4 (Col 3, lines 45-60). Reference numeral 21 which is part of the fluid guiding element as disclosed by Isobe et al also comprises an exhaust manifold 21 (*the fluid discharge channel opening*) (Col 3, lines 59-61 & FIGURE 3). *It is instructive to note that the disclosed manifolds are electrically connected to other fuel cell plates irrespective of the conduction degree.*

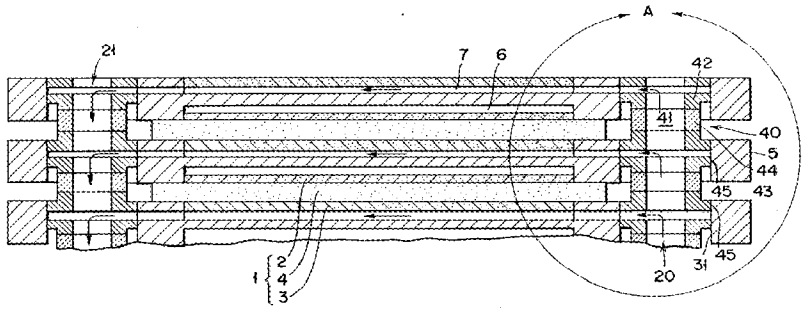


FIG. 3

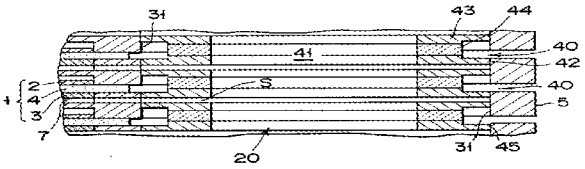


FIG. 4

With respect to claims 32, 40, 64, 72 and 88:

Fuel cell unit 1 comprising the anode 2-cathode 3-electrolyte 4 are arranged on the fluid gas intake manifold 20 extending through the stacked unit cells 1 (the fluid guiding element) (See FIGURES 3-4). *Thus, they are also biased against each other.*

With respect to claims 33, 65 and 89:

Isobe et al disclose the members 42, 43 are shaped metal members (COL 4, lines 7-10).

With respect to claims 34, 61, 66, 90 and 93:

Isobe et al employ welding, brazing and ceramic bonding to join the above-mentioned features (CLAIM 14-16).

Additionally, as to the method limitation, (i.e. connected by laser welding or hard soldering), it is noted that a method limitation incorporated into a product claim does not patentable distinguish the product because what is given patentably consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of a product is independent of how it was made. As a result, the process steps of a product-by-process claim do not impart any significant property or structure to the claimed end product. And, if there is any different, the difference would have been minor and obvious.

Determination of patentability of a product-by-process claim is based on the scope of the product itself.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."
In re Thorpe 777 F.2d 695, 698, 227 USPQ 964,966 (Fed Cir. 1985) and MPEP 2113.

With respect to claims 35, 62, 67 and 94:

Isobe et al discuss the inclusion of the oxidant gas (fluid) gas intake manifold 20 (*the fluid guiding area*) including an opening (*the port*) extend through the stacked unit cells 1 comprising the anode 2-cathode 3-electrolyte 4 (Col 3, lines 45-60). Reference numeral 21 which

is part of the fluid guiding element as disclosed by Isobe et al also comprises an exhaust manifold 21 (*the fluid discharge channel opening*) (Col 3, lines 59-61 & FIGURE 3).

With respect to claims 36, 38, 45, 56, 68, 70 and 77:

Isobe et al's invention includes fuel cell unit 1 comprising the anode 2-cathode 3-electrolyte 4 are arranged on the fluid gas intake manifold 20 extending through the stacked unit cells 1 (the fluid guiding element) (See FIGURES 3-4); and the insulating member 44 which is part of the seal arrangement (See COL 4, lines 7-18) and is of flat shape (CLAIM 18 and FIGURE 3-4). *The anode 2-cathode 3-electrolyte 4 and the insulating member 44 are in operatively connection. Fuel cell unit 1 are also held therebetween.*

With respect to claims 39, 42-44, 71 and 74-76:

Isobe et al disclose that the insulating member 44 which is part of the seal arrangement has a composite material layer thereon which is a multistage layer (CLAIMS 33-34 & See COL 4, lines 7-18). Isobe et al teach that each seal member 40 is formed of two ring-shaped metal members 42-43, and ring-shaped insulating member 44 interposed therebetween (See COL 4, lines 7-18). *Thus, the seal member 40 as a whole abut on the contact areas of the adjacent fuel cells regardless of its specific spatial orientation* (See FIGURES 3-4).

With respect to claims 46, 58 and 78:

Isobe et al disclose each seal member 40 is formed of two ring-shaped metal members 42-43, and ring-shaped insulating member 44 interposed therebetween (See COL 4, lines 7-18). *Each member is taken as a separate sealing element forming the entirety of the seal member 40.*

With respect to claims 59-60 and 91-92:

Isobe et al's invention includes fuel cell unit 1 comprising the anode 2-cathode 3-electrolyte 4 are arranged on the fluid gas intake manifold 20 extending through the stacked unit cells 1 (the fluid guiding element) (See FIGURES 3-4); and the insulating member 44 which is part of the seal arrangement (See COL 4, lines 7-18) and is of flat shape (CLAIM 18 and FIGURE 3-4). *The anode 2-cathode 3-electrolyte 4 and the insulating member 44 are in operatively connection. Fuel cell unit 1 are also held therebetween.*

Isobe et al disclose that the insulating member 44 which is part of the seal arrangement has a composite material layer thereon which is a multistage layer (CLAIMS 33-34 & See COL 4, lines 7-18). Isobe et al teach that each seal member 40 is formed of two ring-shaped metal members 42-43, and ring-shaped insulating member 44 interposed therebetween (See COL 4, lines 7-18). *Thus, the seal member 40 as a whole abut on the contact areas of the adjacent fuel cells regardless of its specific spatial orientation* (See FIGURES 3-4).

Thus, the present claims are fully anticipated.

9. (at least) Claims 1 and 63 are rejected under 35 U.S.C. 102 (a) as being anticipated by the WO publication WO 99/54131 (herein called the WO'131).

The WO'131 discloses sealing arrangements for fuel cells (TITLE) wherein the fuel cell includes a cell assembly including cathode elements 17, cathode contacting surfaces 12, anode elements 18 and anode contacting faces 14 (page 8, lines 19-24) and electrolytes (page 8, lines 30-31). Adjacent separator plates 11 are also included (page 8,lines 19-24). Each separator plate 11 is formed with a gas flow channel arrangement 20, 21 formed thereon (page 9, lines 8-13). Separator plates are shaped metal or metallic members (page 1, lines 9-13). As seen below, the

fuel cell structure as a whole provides respective fluid supply channel opening and fluid discharge channel opening (i.e. fuel gas and air arrows ↑) (See FIGURE 1).

Figure 1 illustrates a fuel cell unit comprising cathode 17, anode 18 and electrolytes and including a shaped metal part connected to the fuel cell unit; and **Figures 4a-b** further illustrate the structure wherein the shaped metal plates (the separator 11) includes an aperture (page 9, lines 20-25) (*which serves as the fluid guiding element*) through the plates which extends through the fuel cell assembly as shown in **FIGURES 4a-b** so that when the stack of cells is assembled they form passages for fuel gas to reach channels 22, passages for oxidant gas to reach channel 23, passages for the exhaust of spent and unused fuel gas and passages for the exhaust of spent and unused oxidant gas (page 9, lines 20-24). *It is instructive to note that separators (which serves as the fluid guiding element) are electrically connected to other fuel cell plates irrespective of the specific conduction degree.*

Fig.1.

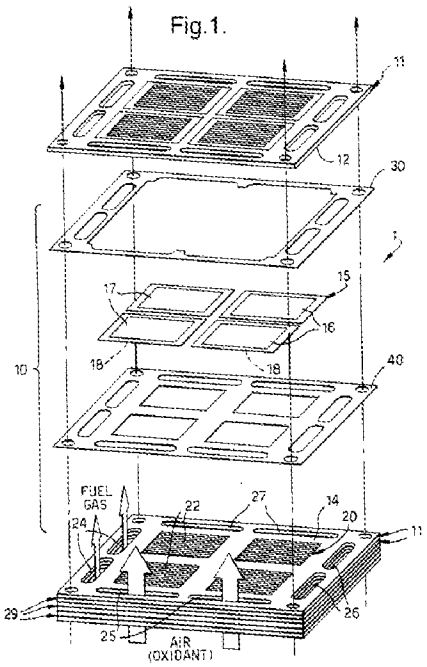


Fig.4(a).

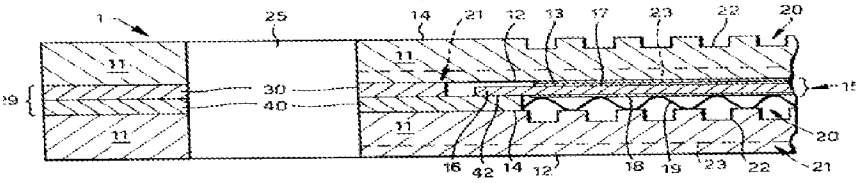
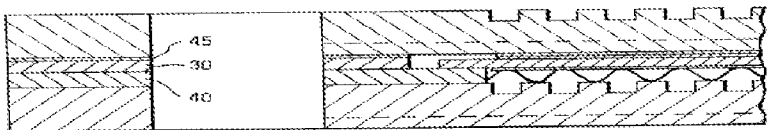


Fig.4(b).



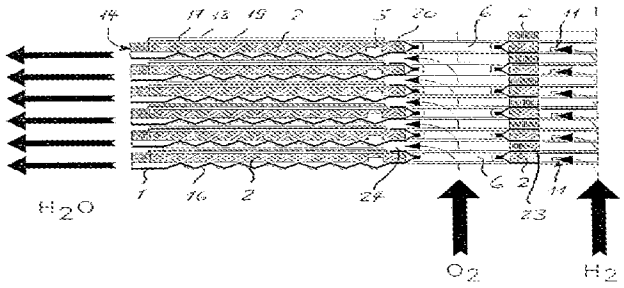
Thus, the present claims are anticipated.

10. (at least) Claims 1 and 63 are rejected under 35 U.S.C. 102 (a) as being clearly anticipated by the WO publication WO 98/35398 (herein called the WO'398).

The WO'398 discloses a fuel cell stack with solid electrolyte and its arrangement (TITLE) wherein the fuel cell includes a cathode layer 18, and an anode layer 19 and ion conducting electrolyte 17 (ABSTRACT). The fuel cell has an aperture (the fluid guiding element) for the intake of a first gas (ABSTRACT). There is provided a gas permeable carrier 2 having ducts for the passage of gases, a separator plate 20 of which at least part lies on the carrier; and another separator plate 1 also lien on the carrier and comprises means which guide the gases in a targeted manner and co-operate with the ducts of the carrier (ABSTRACT). Separator plates are conductive metallic materials (page 8, lines 24-30/page 12, lines 28-36). *Either separator plate 20 or separator plate 1 serves as the fluid guiding element, especially separator 20 is in fluid-tight contact with the anode-electrolyte-cathode assembly and electrically connected to other fuel cell plates irrespective of the conduction degree.* As seen below, the fuel cell structure as a whole provides respective fluid supply channel opening and

fluid discharge channel opening (i.e. O_2 and H_2 arrows ↑) (See FIGURE 2). **Figure 2** illustrates a fuel cell configuration including the above-mentioned members and also including an aperture 6 for the oxidant gas through the fuel cell assembly:

Fig. 2



Thus, the present claims are anticipated.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 37 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe et al 4242099 as applied to claims 36 and 68 above, and further in view Ghosh et al 2002/0024185.

Isobe et al is applied, argued and incorporated herein for the reasons manifested above. However, the preceding reference fails to expressly disclose the specific mica seal.

Ghosh et al disclose that it is known to use seals made of mica as they are able to withstand high temperatures while keeping adequate sealing characteristics and flexibility (P0004/ABSTRACT). Those seals are particularly useful in solid oxide fuel cells (P0001/ABSTRACT).

By compounding these teachings, it would have been obvious to a person possessing a level of ordinary skill in the pertinent art at the time the invention was made to use the specific mica seal of Ghosh et al in the fuel cell system of Isobe et al as Ghosh et al discloses that mica seals are able to withstand high temperatures while keeping adequate sealing characteristics and flexibility in fuel cells (P0004/ABSTRACT).

14. Claims 37 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe et al 4242099 as applied to claims 36 and 68 above, and further in view Virkar et al 6106967.

Isobe et al is applied, argued and incorporated herein for the reasons manifested above. However, the preceding reference fails to expressly disclose the specific mica seal.

Virkar et al disclose that it is known to use mica seals as seals to secure fuel cell stacks inside a metallic component and in order to improve sealing (COL 4, lines 50-60). The fuel cell

stack comprises a plurality of integral component fuel cell units, each integral fuel cell unit including respective anode, cathode and electrolyte (ABSTRACT).

By compounding these teachings, it would have been obvious to a person possessing a level of ordinary skill in the pertinent art at the time the invention was made to use the specific mica seal of Virkar et al in the fuel cell system of Isobe et al as Virkar et al discloses that mica seals are able to secure fuel cell stacks inside a metallic component and improve sealing (COL 4, lines 50-60).

15. Claims 57 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe et al 4242099 as applied to the foregoing claims above, and further in view of Applicant's Admission of Prior Art (heretofore the AAPA) (*Applicant's specification at page 7, 2nd full paragraph*).

Isobe et al is applied, argued and incorporated herein for the reasons manifested above. However, the preceding reference fails to expressly disclose the specific solder glass seal.

The AAPA discloses that solder glass can be used as a sealing medium in fuel cells (*Applicant's specification at page 7, 2nd full paragraph*).

By compounding these teachings, it would have been obvious to a person possessing a level of ordinary skill in the pertinent art at the time the invention was made to use the specific solder glass seal of the AAPA in the fuel cell system of Isobe et al as the AAPA discloses that it is known in the art to use solder glass as a sealing medium for fuel cells because it is chemically resistant, gas-tight and electrically insulating at the operating temperature of the fuel cell. Thus, solder glass material can be considering, in particular, for the sealing.

Response to Arguments

16. Applicant's arguments filed 01/17/08 have been fully considered but they are not persuasive.

17. As a principal reason for claiming patentability of the claimed invention, applicant has made the allegation that the present claims are allowable because "*a shaped sheet metal part is produced from an essentially flat sheet metal blank by means of one or more shaping processes, in particular, by means of embossing and/or deep drawing process*" while the metal members or parts as identified by the examiner in the art of record are made by way of "*casting, milling or erosion*". In reply, it is not understood why applicant is arguing or pointing out limitations not currently recited in the claims. Applicant's allegation has nothing to do with the current issues under contention. Those limitations (allegations) are unclaimed, thereby they do not constitute subject matter under evaluation. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

18. Applicant also has made the allegation that Isobe et al do not provide "*fluid supply channel opening and a fluid discharge channel opening*" and "*a fluid guiding element having an opening for the passage of contact elements arranged on a contact plate of an adjacent fuel cell unit*". In response, the examiner largely disagrees with applicant's allegation which appears to mischaracterize the structural attributes of the claimed invention. Applicant is reminded that his invention is nothing more than a member including an opening/inlet and outlet (discharge

opening) with a pathway (a channel) connecting the opening/inlet with the outlet and incorporated into a fuel cell unit. The foregoing represents a summarized version of applicant's invention. It is as simple as just discussed. No other physical or structural attribute is visible from the claimed language.

(**emphasis supplied**) As an initial matter, it is very helpful to understand that a fluid guiding "*element*" is ANY element capable of guiding fluid. Now we can continue with the art discussion.

The following is a condensed version and illustration of Isobe et al's teachings including oxidant gas (fluid) gas intake manifold 20 (*the fluid guiding area*) including an opening (*the port*) extend through the stacked unit cells 1 comprising the anode 2-cathode 3-electrolyte 4 (Col 3, lines 45-60). Reference numeral 21 which is part of the fluid guiding element as disclosed by Isobe et al also comprises an exhaust manifold 21 (*the fluid discharge channel opening*) (Col 3, lines 59-61 & FIGURE 3). It is instructive to note that the disclosed manifolds are electrically connected to other fuel cell plates irrespective of the conduction degree.

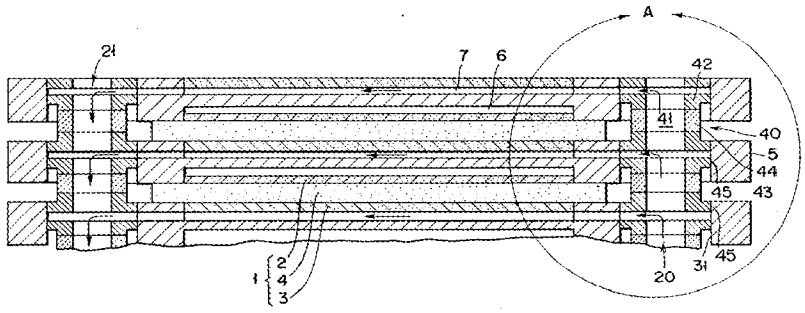


FIG. 3

No distinguishing feature or structural pattern is seen between applicant's invention and Isobe et al's teachings. No structural and functional divergence are also seen between applicant's invention and Isobe et al's teachings. Thus, the basis for applicant's allegation with respect to this

issue is groundless. As such, the present claims as currently drafted are unpatentable over Isobe et al's teachings.

19. Applicant also has made the allegation that the WO'131 does not provide "*any contact plate*", "*the separator plates are separated from each other by electrically insulating layers*" and "*a fluid guiding element having an opening for the passage of contact elements arranged on a contact plate of an adjacent fuel cell unit*". In response, the examiner largely disagrees with applicant's allegation which appears to mischaracterize the structural attributes of the claimed invention. Applicant is reminded that his invention is nothing more than a member including an opening/inlet and outlet (discharge opening) with a pathway (a channel) connecting the opening/inlet with the outlet and incorporated into a fuel cell unit. The foregoing represents a summarized version of applicant's invention. It is as simple as just discussed. No other physical or structural attribute is visible from the claimed language.

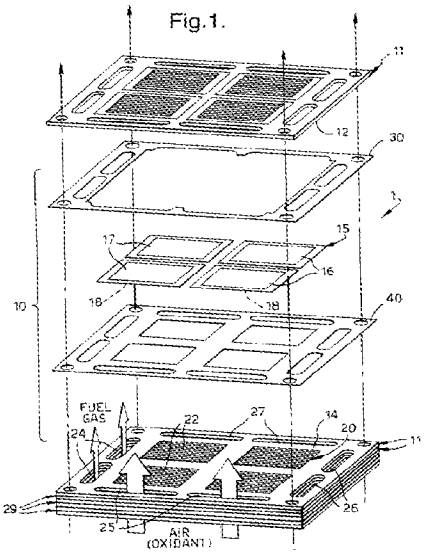
(**emphasis supplied**) As an initial matter, it is very helpful to understand that a fluid guiding "*element*" is ANY element capable of guiding fluid. Now we can continue with the art discussion.

For applicant's convenience, a relevant part of the subject matter disclosed in WO'131 is re-posted below:

Figure 1 illustrates a fuel cell unit comprising cathode 17, anode 18 and electrolytes and including a shaped metal part connected to the fuel cell unit; and **Figures 4a-b** further illustrate the structure wherein the shaped metal plates (the separator 11) includes an aperture (page 9, lines 20-25) (*which serves as the fluid guiding element*) through the plates which extends through the fuel cell assembly as shown in **FIGURES 4a-b** so that when the stack of cells is assembled

they form passages for fuel gas to reach channels 22, passages for oxidant gas to reach channel 23, passages for the exhaust of spent and unused fuel gas and passages for the exhaust of spent and unused oxidant gas (page 9, lines 20-24). It is instructive to note that separators (which serves as the fluid guiding element) are electrically connected to other fuel cell plates irrespective of the specific conduction degree.

It is also instructive to recognize that a fuel cell stack is composed of multiple members including a plurality of plates regardless of their specific functions. Therefore, a fuel cell stack necessarily includes plates of adjacent fuel cell units contacting each other. It is highlighted that the embodiment of a fuel cell stack does encompass a multiplicity of adjacent plates.



Additionally, the examiner does not agree with applicant's one-way characterization that separator plates 11 must be identified with either the fluid guide element or with the contact plate of the respective fuel cell unit. Reason why, very simple: the invention in question does not establish in written paper that separator plates are not fluid guiding element or vice versa. A fluid guiding "*element*" is ANY element capable of guiding fluid. There is nothing else to describe the

physical qualities of the claimed fluid guiding element. It is further instructive to point out that degree of electrical conduction is unknown or undefined. Therefore, the presence of electrically insulating layers provides a poor conduction between plates, such a poor conduction is still a conduction.

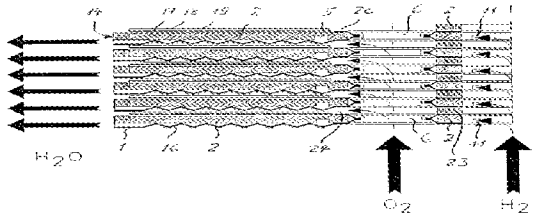
For a second time, no distinguishing feature or structural pattern is seen between applicant's invention and the WO'131's teachings. No structural and functional divergence are also seen between applicant's invention and the WO'131's teachings. Thus, the basis for applicant's allegation with respect to this issue is groundless. As such, the present claims as currently drafted are unpatentable over the WO'131's teachings.

20. Applicant has further made the allegation that the WO'398 does not provide "*a separator with any fluid discharge channel opening*", "*a fluid guiding element to which the electrolyte of the cathode-anode-electrolyte unit does not extend*"; and "*a fluid guiding element having an opening for the passage of contact elements arranged on a contact plate of an adjacent fuel cell unit*". In response, the examiner largely disagrees with applicant's allegation which appears to mischaracterize the structural attributes of the claimed invention. Applicant is reminded that his invention is nothing more than a member including an opening/inlet and outlet (discharge opening) with a pathway (a channel) connecting the opening/inlet with the outlet and incorporated into a fuel cell unit. The foregoing represents a summarized version of applicant's invention. It is as simple as just discussed. No other physical or structural attribute is visible from the claimed language.

(**emphasis supplied**) As an initial matter, it continues to be very helpful to truly understand that a fluid guiding "*element*" is ANY element capable of guiding fluid. Now we can continue with the art discussion.

The WO'398 discloses a fuel cell stack with solid electrolyte and its arrangement (TITLE) wherein the fuel cell includes a cathode layer 18, and an anode layer 19 and ion conducting electrolyte 17 (ABSTRACT). The fuel cell has an aperture (the fluid guiding element) for the intake of a first gas (ABSTRACT). Separator plates are conductive metallic materials (page 8, lines 24-30/page 12, lines 28-36). Either separator plate 20 or separator plate 1 serves as the fluid guiding element, especially separator 20 is in fluid-tight contact with the anode-electrolyte-cathode assembly and electrically connected to other fuel cell plates irrespective of the conduction degree. As seen below, the fuel cell structure as a whole provides respective fluid supply channel opening and fluid discharge channel opening (i.e. O_2 and H_2 arrows ↑) (See FIGURE 2). **Figure 2** illustrates a fuel cell configuration including the above-mentioned members and also including an aperture 6 for the oxidant gas through the fuel cell assembly:

Fig. 2



It is instructive to note that the fuel cell design of WO'398 includes fluid discharge channel openings through the circular circumferential surface of the fuel cell stack. There is

nothing wrong about that because the claimed structure does not define the specific spatial orientation of the fluid discharge opening. The only requirement is in claim 1 which calls for the formation of a fluid port in a stacking direction. **Figure 2** plays a key role in traversing applicant's allegation about the discharge opening and the stacking direction. As seen in Figure 2, the fuel cell structure as a whole provides respective fluid supply channel opening (i.e. **O_2 and H_2 arrows** ↑) and fluid discharge channel opening in the stacking direction (i.e. **H_2O arrows** ←) (See FIGURE 2). Claim 63 does not include equal or similar language. Thus, applicant's arguments cannot apply to claim 63.

It is also instructive to recognize that a fuel cell stack is composed of multiple members including a plurality of plates regardless of their specific functions. Therefore, a fuel cell stack necessarily includes plates of adjacent fuel cell units contacting each other. It is highlighted that the embodiment of a fuel cell stack does encompass a multiplicity of adjacent plates.

As to the allegation that WO'398 does not show the limitation "*the fluid guiding element is provided with at least one fluid port in a fluid guiding area of the fluid guiding element to which the electrolyte of the cathode-anode-electrolyte unit does not extend*", the only thing that such a language appears to restrict is that the no cathode-anode-electrolyte unit is into the fluid port or extends in an overlapping manner into the fluid port. No other restrictive element or limiting effect can be inferred from that language as current drafted. That being said, an inspection of fluid supply channel openings through the fuel cell stack (i.e. **O_2 and H_2 arrows** ↑) CLEARLY shows that the cathode-anode-electrolyte unit does not extend into the so-called fluid port. From a logical standpoint, this must occur otherwise the cathode-anode-electrolyte unit would block or cover the so-called fluid port.

21. The terminal disclaimer dated 01/17/08 does not obviate the double patenting rejection because it does not identify the particular patent applicable to the disclaimer. Terminal disclaimer is incomplete.

Conclusion

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Raymond Alejandro/
Primary Examiner, Art Unit 1795